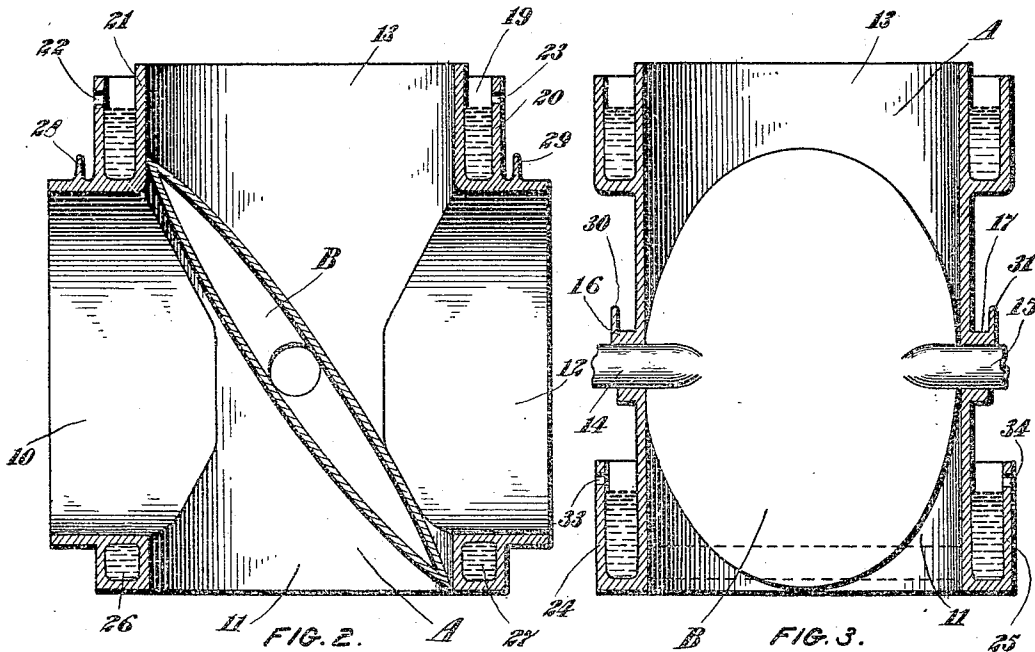
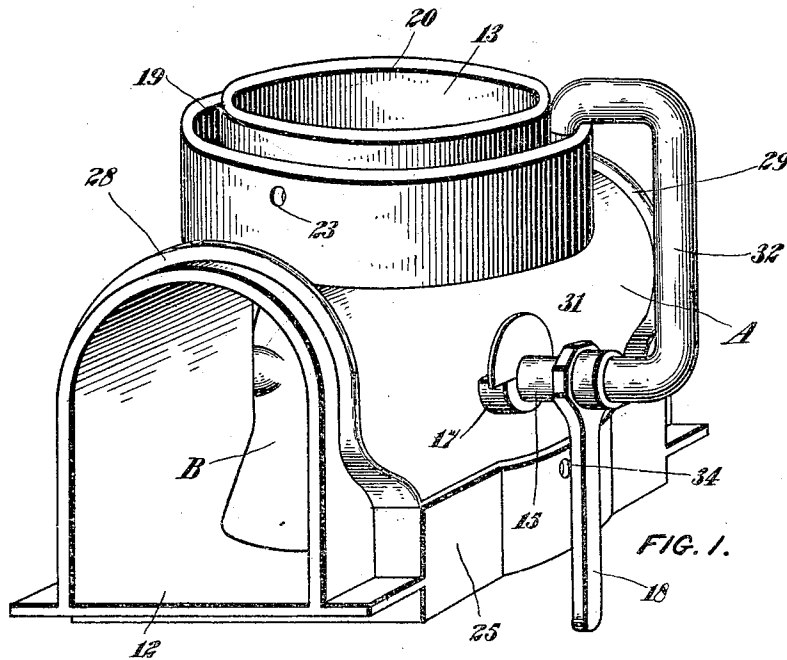


W. C. MITCHELL.
WATER COOLED VALVE.
APPLICATION FILED JAN. 3, 1910.

956,538.

Patented May 3, 1910.



WITNESSES,
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UNITED STATES PATENT OFFICE.

WILLIAM CLARK MITCHELL, OF SYDNEY, NOVA SCOTIA, CANADA.

WATER-COOLED VALVE.

956,538.

Specification of Letters Patent.

Patented May 3, 1910.

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To all whom it may concern:

Be it known that I, WILLIAM CLARK MITCHELL, of Sydney, in the Province of Nova Scotia, Canada, have invented certain new and useful Improvements in Water-Cooled Valves, of which the following is a specification.

My invention relates to water cooled gas valves and particularly to fourway reversing valves for gas fired furnaces and the like, and the objects of my invention are to provide a simplified method of effectively cooling such valves during use: and it consists essentially of open water troughs formed on the surface of the valve casing through which water is circulated in the manner hereinafter described in detail in the accompanying specifications and drawings.

In the drawings: Figure 1 is a perspective view of the valve. Fig. 2 is a longitudinal section through the same. Fig. 3 is a transverse section through the same.

In the drawings like characters of reference indicate corresponding parts in each figure.

Referring to the drawings, A is the valve casing of usual construction having ports 10, 11, 12 and 13 opening in different directions and adapted to communicate with a conducting pipe leading to the furnace or regenerator, the direction of passage of the gas through said ports being controlled by a butterfly B having suitable trunnions 14 and 15 journaled in bearings 16 and 17 provided on the side of the casing.

The valve operates in the usual way, a reversing being effected by tilting of the butterfly from one side to the other, which tilting may be accomplished by any suitable means, such as the lever 18 connected to one of the trunnions.

In order to effect cooling of the butterfly, the same is made hollow, as are also the trunnions and a cooling liquid such as water is passed through the same. To cool the body of the casing, around the upper outlet, a trough 19 is provided formed by an annular wall 20 which is spaced a short distance from a projecting wall 21 of the port. This trough may be provided with overflow ports 22 and 23 and the water discharging within the same is adapted to pass to troughs 24 and 25 on opposite sides of the lower part of the casing; the said troughs

being connected by passageways 26 and 27 which pass beneath the ports 10 and 11. To guide the liquid in passing from the upper to lower trough, guiding flanges 28 and 29 are provided along the sides of the casing and leading toward the upper edges of the troughs 24 and 25. Flanges 30 and 31 are also provided around the upper part of the bearings 16 and 17 adapted to prevent the water flowing over the edges of said bearings.

In operation: water is continuously passed through the butterfly and into the trough 19 by suitable conducting means, as by the pipe 32. The water then overflows from said trough and passes into the lower trough from whence it may pass into a suitable sewer through overflow passageways 33 and 34.

It will be seen that the present invention provides very effective means for cooling all parts of the valve casing and the butterfly, assuring effective operation of the valve even with cases of exceedingly high temperature.

As many changes could be made in the above construction, and many apparently widely different embodiments of my invention within the scope of the claims could be made without departing from the spirit or scope thereof, it is intended that all matter contained in the accompanying specifications and drawings shall be interpreted as illustrative and not in a limiting sense.

What I claim is:

1. A fourway reversing valve having ports on opposite sides and in the top and bottom, an open trough around the top port, troughs on the side extending longitudinally between the side ports and inclosed passageways connecting said last mentioned troughs.

2. A fourway reversing valve having ports on opposite sides and in the top and bottom, an open trough around the top port, troughs on the side extending longitudinally between the side ports, inclosed passageways connecting said last mentioned troughs and guiding flanges on the surface of the valve adapted to guide the water overflowing from the top trough to the lower troughs.

3. A fourway reversing valve comprising a casing, top, bottom and side ports, a hollow butterfly in the casing, a trough formed on the exterior of the casing around the upper port, conducting means extending from the butterfly to said trough and lower

troughs along the side of the casing connected by passageways passing beneath the side ports.

4. A fourway reversing valve comprising
5 a casing, top, bottom and side ports, a hollow butterfly in the casing, a trough formed on the exterior of the casing around the upper port, conducting means extending from the butterfly to said trough and lower
10 troughs along the side of the casing connected by passageways passing beneath the

side ports, said casing being formed with bearings for the trunnions on the butterfly, and the said bearings having flanges at their edges adapted to prevent the water flowing 15 over the same.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

WILLIAM CLARK MITCHELL.

Witnesses:

WALTER CROWE,
A. M. MACKENZIE.